Use What You Know — Year 4 Maths

Year 4 Maths · 50 challenge cards

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Five-card sample · screen

Each challenge is followed by its answer.

- One card per page; the answer is on the next page.

Fifty short challenges that ask children to spot which maths will help, then explain or check their answer.

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UseWhatYouKnow-Y4-Maths-Sample-Screen.pdf

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A ticket counter shows the number of full thousands in its first box and the number of tickets left over in its second box. The second box shows 970. After 80 more tickets arrive, the first box shows 6.

How many tickets had arrived before the last 80?

Answer

5970

How to work it out

Adding 80 to the 970 loose tickets gives 1,050. That makes one new full thousand and leaves 50 loose tickets. The first box shows 6 after the change, so it showed 5 before. The earlier count was 5,000 + 970 = 5,970.

What mattered

The new thousands reading tells you how many thousands there were before the loose tickets spilled into another thousand.

Four racks each start with 25 badges. The table shows what happens next. Every returned badge goes back to the rack it came from.

Rack	Borrowed	Returned
Blue	16	9
Gold	19	13
Green	15	4
Purple	11	2

Which rack now has the fewest badges, and how many are on it?

Answer

Green, with 14 badges.

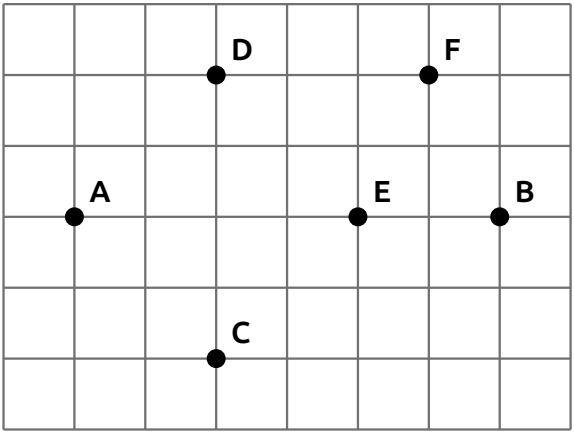
How to work it out

Subtract each rack's borrowed badges from 25 and add its returns. Blue has 18, Gold 19, Green 14 and Purple 16. Green has the fewest. You could also spot that Green loses the most overall: 15 borrowed with 4 returned is 11 fewer than it started with.

What mattered

Borrowing lowers a rack's count and returning raises it. Both columns matter when you compare.

Draw two straight strokes between pairs of dots. One stroke must be horizontal and one vertical. They must cross each other away from their ends, where there is no dot. A stroke must not pass through another dot.



1 grid interval = 1 m

Which two pairs of dots do the lines join?

Answer

A to E and C to D, in either order.

How to work it out

C and D are the only two dots on the same vertical grid line. For a right-angle crossing, the other line must run across. A to E crosses C to D without meeting an extra dot. A to B crosses too, but goes through E. E to B never reaches C to D, and D to F only meets it at dot D.

What mattered

A true crossing here has to lie between both pairs of endpoints, with no extra dot on either line.

Two trays hold 146 counters and 148 counters. Machine A rounds each count to the nearest 10 before adding. Machine B adds the exact counts before rounding the total to the nearest 10.

What total does each machine give?

Answer

Machine A: 300. Machine B: 290.

How to work it out

Machine A rounds 146 and 148 to 150 each, then adds them to give 300. Machine B adds 146 + 148 to get 294. The nearest 10 to 294 is 290, so that is its total.

What mattered

Rounding separately can give a different total from rounding once at the end.

In the first mosaic, $\frac{3}{4}$ of 24 tiles are blue. In a second mosaic, 30 tiles make five equal stripes. Each stripe is one colour. Both mosaics need the same number of blue tiles.

What fraction of the second mosaic must be blue? Explain how you found it.

Answer

$^{3}/_{5}$. The 18 blue tiles fill three of the five equal stripes.

How to work it out

The first mosaic has 24 ÷ 4 = 6 tiles in one quarter, so three quarters is 18 blue tiles. Each stripe of the second mosaic has 30 ÷ 5 = 6 tiles. The 18 blue tiles fill three of the five equal stripes, so $^{3}/_{5}$ is blue.

What mattered

The two mosaics have different totals. The same number of blue tiles can be a different fraction of each mosaic.